connected with the corner may block radio signals and hence it may be optimal for the source node to communicate with another router, such as a router with direct line of sight.

[0032] In some embodiments, the source node may identify a distance between the host and each router by monitoring the time it takes for an ICMPv6 Router Advertisement to be received by the source node in response to a ICMPv6 Router Solicitation Message, or the time it takes to receive a Dynamic Host Change Protocol (DHCP) DHCPOFFER message in response to a DHCPDISCOVER message. In yet further embodiments, the source node may measure a distance to each router by performing a ping test (e.g., by sending an ICMP Echo Request) to nearby routers and measuring the amount of time it takes to receive a response to the ping test.

[0033] In the present example of the network **200**, the first router **206** is located two hops away from the source node **202**, and the second router **208** is located three hops away from the source node. According to example embodiments of the invention, the source node **202** may identify the number of hops required to communicate with each router, and select the router which requires fewer network hops. In this case, the source node **202** may select the first router **206** for routing communications with a network for which the first router **206** acts as a gateway (e.g., the Internet). The source node **202** may configure itself to select the first router by modifying a router selection operation such as, for example, an IP Source Address Selection operation.

[0034] FIG. **3** is a flow diagram illustrating an example of a method **300** for selecting a router in an infinite link environment in accordance with an example embodiment of the present invention. The method **300** is operable to enable a device, such as a mobile terminal as described with respect to the apparatus **100**, to select a particular router or routers in an infinite link environment based on link layer metrics associated with the selected router. The mobile terminal may determine the link layer metrics for each router that is accessible to the mobile terminal, and select a router with favorable link layer metrics. In some embodiments, the mobile terminal may also use network layer metrics in the process of selecting a router, and the network layer metrics may be used in conjunction with the link layer metrics. In some embodiments, the link layer metrics may override the network layer metrics if the link layer metrics exceed a particular threshold value. The method **300** may be performed by a processing means, such as the processor **102** described with respect to the apparatus **100**.

[0035] At action **302**, routers that are accessible to the mobile terminal may be identified. As described above with respect to FIG. **2**, a particular network node (e.g., the mobile terminal) may not be able to communicate with all nodes of the network for various reasons (e.g., due to packet relay limitations employed to conserve network resources). As such, the mobile terminal may identify with which of a plurality of routers that mobile terminal is able to communicate. This may be accomplished by sending a solicitation from the mobile terminal and identifying the routers based on received advertisements, or by another other method of identifying routers in the network. Accessible routers may be identified by a processing means, such as the processor **102**.

[0036] At action **304**, link layer metrics for the accessible routers may be determined. For example, the mobile terminal may determine a distance between the mobile terminal and each router as described with respect to FIG. **2**. The mobile terminal may determine a number of hops between the mobile terminal and each router, a ping latency between the mobile terminal and the router, or the like. Additionally or alternatively, the mobile terminal may also identify other link layer metrics, such as energy consumption to communicate with each router or radio path characteristics for each router. Link layer metrics may be determined by a processing means, such as the processor **102**.

[0037] At action **306**, network layer metrics for each of the routers may be determined. As described above, embodiments of the invention may use both link and network layer metrics to decide which of the accessible routers to select. For example, routers in the network may be assigned priority levels, such that a given router is assigned a low priority, a medium priority, a high priority, or the like. Router priority may be defined in accordance with certain standards, such as Internet Engineering Task Force (IETF) RFC4191, section 2.1. Other network layer metrics may include valid or preferred lifetimes of IPv6 prefixes advertised by routers, rules received dynamically that alter address selection preferences (see, e.g., Draft IETF Distributing Address Selection Policy Using DHCPv6 Standard Proposal), and/or router lifetimes as defined in IETF RFC4861, section 4.2. In some embodiments, a router may be selected based on link layer metrics without involving network layer metrics, and as such the network layer metrics may not be gathered as described at action **306**. Network layer metrics may be determined by a processing means, such as the processor **102**.

[0038] At action **308**, the network layer metrics and link layer metrics may be processed, and further processing of the method may depend upon the relationship between the metrics. For example, the method **300** may arbitrate between network and link layer metrics that might cause a selection of different routers. In an example, a first router may be physically closer to the source node, but assigned a low priority, and a second router may be assigned a higher priority level but be located farther from the source node. In such an environment, the router might select the farther router, due to the priority metric causing an override when comparing a "low" priority router to a "medium" or "high" priority router. Alternatively, in the same example, but with the closer router assigned a "medium" priority and the farther router assigned a "high" priority, the closer proximity might override the priority metric. In some embodiments, different metric values are assigned different weights for the selection process, such that certain link layer metrics may override certain network layer metrics, and vice-versa. The determination as to whether one set of metrics override another may be performed by a processing means, such as the processor **102**.

[0039] At action **310**, a router may be selected based on the distance as described with respect to the link layer metrics. For example, a nearest router in terms of network hops or a router with a lowest ping latency may be selected as a default router. In some embodiments, the closest router is selected this way in response to a tie among other metrics (e.g., selection among two routers with the same priority). Selection of a closest router in this manner may have the benefit of conserving network resources by minimizing relaying of data (e.g., by minimizing hops). The router selection may be performed by a processing means, such as the processor **102**. The router may be selected by modification of a Source Address Selection process, as described above.

[0040] At action **312**, the router may be selected based on network metrics, such as the router priority if the link layer metrics do not override the network layer metrics. In this